

WHAT IS CLAIMED IS:

1. A heat-developable image recording material comprising:

a support;

a photosensitive silver halide;

a non-photosensitive organic silver salt;

a reducing agent for a silver ion; and

a binder including a polymer latex,

wherein the polymer latex has a halogen ion content of not more than 500 ppm.

2. The heat-developable image recording material as claimed in Claim 1, wherein the polymer latex has a halogen ion content of not more than 200 ppm.

3. The heat-developable image recording material as claimed in Claim 1, wherein the halogen ion is a chlorine ion.

4. The heat-developable image recording material as claimed in Claim 1, wherein the polymer latex is not subjected to purification by a desalting process.

5. The heat-developable image recording material as claimed in Claim 1, wherein the binder has a glass transition temperature of from -20°C to 80°C.

6. The heat-developable image recording material as claimed in Claim 1, wherein the polymer latex contains a conjugated diene copolymer.

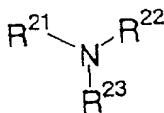
7. The heat-developable image recording material as claimed in Claim 1, wherein the reducing agent contains:

a phenol compound; and

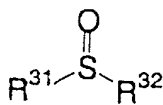
a compound that satisfies at least one of the conditions (A) and (B):

(C) : the compound having a hydrogen bond-forming rate constant (Kf) of from 20 to 4,000,

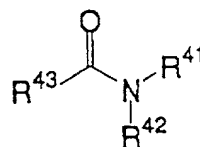
(D) : the compound having one of a phosphoryl group in its molecule, and a structure represented by formula (II), (III), (IV) or (V):



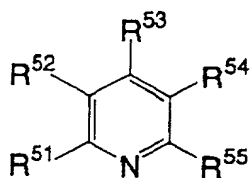
(II)



(III)



(IV)



(V)

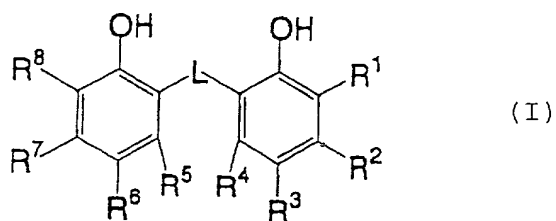
wherein R^{21} and R^{22} , which are the same or different, each represents an alkyl group; R^{23} represents an alkyl group, an aryl group or a heterocyclic group; at least two of R^{21} , R^{22} and R^{23} may be combined with each other to form a ring, R^{31} and R^{32} , which are the same or different, each represents an alkyl group, an aryl group or a heterocyclic group; R^{31} and R^{32} may be combined with each other to form a ring,

R^{41} and R^{42} , which are the same or different, each represents an alkyl group, an aryl group or a heterocyclic group; R^{43} represents an alkyl group, an aryl group, a heterocyclic group or $-N(R^{44})(R^{45})$; R^{44} and R^{45} , which are the same or different, each represents an alkyl group, an aryl group or a heterocyclic group; at least two of R^{41} , R^{42} , R^{43} , R^{44} and R^{45} may be combined with each other to form a ring, and

R^{51} , R^{52} , R^{53} , R^{54} and R^{55} , which are the same or different, each represents a hydrogen atom or a substituent; at least two of R^{51} , R^{52} , R^{53} , R^{54} and R^{55} may be combined with each other to form a ring.

8. The heat-developable image recording material as claimed in Claim 7, wherein the phenol compound is an o-polyphenol compound.

9. The heat-developable image recording material as claimed in Claim 8, wherein the o-polyphenol compound is a compound represented by formula (I):



wherein R^1 , R^2 , R^3 , R^4 , R^5 , R^6 , R^7 and R^8 , which are the same or different, each represents a hydrogen atom or a substituent capable of being substituted on the benzene ring; L represents $-S-$ or $-CHR^9-$; and R^9 represents a hydrogen atom or an alkyl group.

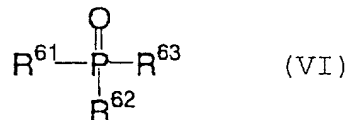
10. The heat-developable image recording material as claimed in Claim 9, wherein the compound represented by formula (I) is a compound in which R^2 , R^4 , R^5 and R^7 each represents a hydrogen atom; R^1 and R^8 each independently represents an alkyl group; R^3 and R^6 each independently represents an alkyl group; and L represents $-CHR^9-$.

11. The heat-developable image recording material as claimed in Claim 10, wherein R¹ and R⁸ each independently represents a secondary alkyl group or a tertiary alkyl group.

12. The heat-developable image recording material as claimed in Claim 7, wherein the hydrogen bond-forming rate constant (Kf) is from 70 to 4,000.

13. The heat-developable image recording material as claimed in Claim 7, wherein the phenol compound is an o-polyphenol compound, and the compound which satisfies at least one of the conditions (A) and (B) is the compound having a phosphoryl group in its molecule.

14. The heat-developable image recording material as claimed in Claim 7, wherein the compound having a phosphoryl group in its molecule is a compound represented by formula (VI):



wherein R^{61} , R^{62} and R^{63} , which are the same or different, each represents an alkyl group, an aryl group, an aralkyl group, an alkoxy group, an aryloxy group, an amino group or a heterocyclic group.

15. The heat-developable image recording material as claimed in claim 1, which further comprises an image-forming layer containing the photosensitive silver halide, the non-photosensitive organic silver salt and the binder.

16. The heat-developable photosensitive material as claimed in claim 15, wherein the image-forming layer further contains the reducing agent for a silver ion.

17. The heat-developable photosensitive material as claimed in claim 15, which further comprises a second image-forming layer containing the reducing agent for a silver ion.